

REMARKS

In accordance with the requirements of the amended claims, a plurality of photoelectric conversion elements having switching elements are arranged on an insulating substrate and covered with a protective layer in order to stabilize the device. Also, an additional layer is provided on the protective layer in order to flatten the surface thereof, and the materials for those two layers are different for the purpose of ensuring the functional separation of those layers. By separating the function of the layers, as mentioned above, it becomes possible to realize an effective improvement in crystallinity of the columnar crystal scintillator of the wavelength converter. Accordingly, the problem discussed at Page 8, line 20 – Page 9, line 11 of the Specification is solved by the above-characterized structure. Also, the structure of the present invention provides a further advantage of obtaining a wavelength converter with good crystallinity as a result of flattening the surface on which the wavelength converter is to be formed by solving the problem of the step due to the photoelectronic conversion elements arranged on the insulating layer and the peripheral areas. This advantage is not produced by a prior art protective layer essentially provided to serve as the stabilization of the device.

Referring to the alleged disclosures of the cited prior art, Applicant points out the following:

In the cited Possin patent, the "first surface 131" of "array block 130" in Fig. 1, does not disclose a step due to photoelectric conversion elements arranged on an insulating substrate. Also, from Column 4, lines 11-41, it is clear that the disclosure of the cited Possin patent relates to a technology of single crystal silicon semiconductors.

Therefore, Applicant believes that the "first semiconductor material layer 134" mentioned in Possin corresponds to the "substrate" of the present invention.

As to cited Shigeta patent, there is no step due to photoelectric conversion elements arranged on an insulating substrate. This fact is apparent from Fig. 5 which shows that the "photodiode 12" is provided inside "semiconductor substrate 11".

The cited Lubowski patent merely discloses that "phosphor screen" of an "x-ray image intensifying tube" is formed by depositing "cesium iodide" onto a glass substrate, while the cited Kobayashi patent only gives a description of "photoelectric conversion element S11", "TFT T11", "capacitor C11" and "signal line SIG" arranged on "insulating substrate 21", and also of the formation of "passivation silicon nitride film" and "cesium iodide". On the other hand, Applicant's claimed invention is not disclosed in those patents.

Referring now to the cited Majewski patent, Applicant points to the absence of any disclosure of a step caused by photoelectric conversion elements arranged on an insulating substrate. This failure of the disclosure of the Majewski patent is apparent from the "array of position sensitive photomultiplier tubes 16" of Fig. 1 of Majewski.

Similarly, the Yamazaki patent only discloses a "process of crystallizing an amorphous silicon film by a heat treatment", but does not disclose Applicant's claimed structure.

None of these cited references suggests the requirements of Applicant's claims, nor the effect described at Page 8, line 20- Page 9, line 11 of the present Specification, i.e., obtaining a wavelength converter with good crystallinity as a result of flattening the surface on which the wavelength converter is to be formed, by solving the problem of the step due to the photoelectronic conversion elements arranged on the

insulating layer and the peripheral areas thereof. Again, this problem cannot be solved only by a protective layer essentially provided to serve as the stabilization of the device.

Accordingly, the requirements of Applicant's claims are not described by the prior art patents, no matter how they may be combined.

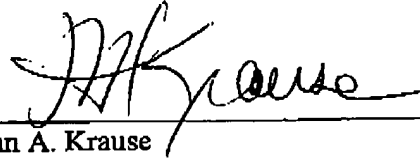
Referring more particularly to Claim 52, Applicant stresses that none of the cited references suggest the effect of obtaining a wavelength converter with good crystallinity, as a result of flattening the surface on which the wavelength converter is to be formed, by solving the problem of the step due to the photoelectronic conversion elements arranged on the insulating layer and the peripheral areas.

Also, as to Claim 53, none of the cited references discloses obtaining a wavelength converter with good crystallinity by flattening the surface of the wavelength converter by solving the problem of the steps. Again, this problem could not be solved merely by providing a protective layer formed for the stabilization of the device, wherein such steps are caused by photoelectric conversion elements formed by an amorphous silicon film and TFT lying adjacent to the photoelectric conversion elements arranged on the insulating substrate whose thicknesses differ in a direction away from the insulating substrate.

Accordingly, it is respectfully submitted that the amended claims are patentable over all of the cited references and the issuance of a Notice of Allowance is solicited.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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